18. A method as defined in claim 16, wherein said machine components or articles are made from titanium, titanium alloys, steels or nickel-based alloys.

19. A method as defined in claim 16, wherein said cathodes are selected from titanium alloys, steels or nickel-based alloys which after having been cooled deposition form a composition similar to the base material of a machine component or article.

20. A method as defined in claim 16, wherein said plurality of microlayers is selected from the numbers 3-500, and said microlayers (a), (b), (c) alternate successively.

21. A method as defined in claim 19, wherein the thickness values of said microlayers (a), (b), (c) are in a ratio of 1.0:2.0:2.5.

22. A method as defined in claim 16, comprising preliminary deposition of a microlayer consisting of scandium, yttrium or other rare earth metal having a thickness of 0.02 to 0.08 micron before step (vi).

23. A method as defined in claim 16, wherein the reaction gas is nitrogen, acetylene, methane or diborane.

24. A method as defined in claim 16, wherein ion deposition is effected with ions of argon, or nitrogen, or carbon, or boron at an accelerating voltage of 10-50 kV, at a radiation dose of 1014 - 1018 ion/sq.cm and an energy of ions of 5x103 - 1x105 eV.

25. A method as defined in claim 16, wherein said ion-plasma deposition step (vi) comprises the steps of depositing:

(a) a scandium microlayer in argon atmosphere;

(b) a titanium microlayer in argon atmosphere;

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